



QUARTERLY STATUS REPORT NO. 17

April 1, 1969 - June 30, 1969

Contract Number NSR 37-004-008
and NSR 37-004-009

Southeastern State College

Durant, Oklahoma

Leon Hibbs

President

Chairman of TUSC

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July 1969

Technology Use Studies Center
Southeastern State College
Durant, Oklahoma 74701

PREFACE

This Quarterly Status Report covers Center activity from April 1, 1969 through June 30, 1969.

Mr. A. M. Moore prepared the contents of this report, and Mrs. Velma Dittmar supervised the preparation of the report.

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INDEX

Subject	Page
Preface	iii
Index	iv
Summary	v
Specific Report Relating to Statement of Work in NSR 37-004-008	1
Dissemination and Assistance	1
Technology Utilization Program.	1
Searches Processed During April, May, and June	4
Economic Data Collection	7
Faculty Information Service.	8
Impact Measurement Study	8
Cooperation with Other Agencies.	9
Specific Report Relating to Statement of Work in NSR 37-004-009	9
General Center Functions.	10
TUSC Staff.	10
Appendix A.	12

SUMMARY

The Five-Year Impact Measurement Study was completed, printed, and distributed during the quarter which ended June 30, 1969. In addition, a new contract proposal was revised and tentatively approved.

~~Seventy-one searches were completed for TUSC and STS clients during the quarter. In this report, four new cases of technology transfer are reported.~~

As a result of graduation, there has been a major turnover of student personnel at TUSC.

SPECIFIC REPORT RELATING TO STATEMENT OF
WORK IN NSR 37-004-008

The following is a report relating directly to specific projects contained in the TUSC work statement under Contract NSR 37-004-008.

Dissemination and Assistance

Technology Utilization Program

This section reports (1) searches which originated from TUSC field activity and which may result in a documented transfer, and (2) the total searches conducted by the TUSC information retrieval personnel. The total number includes searches performed for the State Technical Service field representative who is associated with TUSC. Transfers which may result from the STS searches are reported by the STS field representative to STS officials at Oklahoma State University and in Washington, D. C. Those searches with an "S" in the search number are STS searches.

Case 157. Problem: The client, a graduate Chemical Engineer, is involved in a research project as a means of keeping informed of the latest developments in his academic field. He asked for current information on the state-of-the-art in foam plastics.

Solution: These documents were provided to the client: NASA Tech Brief 66-10111, three articles from the Modern Plastics Encyclopedia, one article from Plastic Engineering Handbook, and 12 abstracts.

Case 158. Problem: A client asked if there is a method for removing clay from crushed rock aggregate. The clay has almost the same specific gravity and is sized the same as the aggregate.

Solution: The NASA data bank was searched in the area of instrumentation and photography. Several documents were retrieved which were on the nature of basic research on optics selection. The client was referred to a firm in Houston, Texas. The firm manufactures an optics device that separates off-colored shelled peanuts during processing. This problem involves the same kinds of considerations inherent in the removal of off-colored shelled peanuts.

Case 159. Problem: What is the state-of-the-art in quick freezing small quantities of liquids or solids with cryogenic fluids?

Solution: The TUSC response in this case included general state-of-the-art information in cryogenics from the TUSC library in addition to one NASA Contract Report and 17 abstracts on Cryogenic Systems and Equipment. The state-of-the-art information was provided as subject background material because the client was not well versed in the subject of cryogenics. The contract report, NASA CR 988, Design and Construction

of an Engineering Solid Cryogen Refrigerator for Infrared Detector Cooling at 50 Degrees K, and abstracts pertaining to cryogenic applications were more specific to the client's area of interest.

Application: There has not been sufficient time for the client to make document requests based on the abstracts. However, it appears that one document shown in abstract is quite relevant to the client's question. The document N68-18446, Predictions for Future of Cryogenic Applications, discusses food preservation with cryogenics as well as small cryogenic devices.

Case 160. Problem: Have laser beams ever been used for cutting or drilling limestone?

Solution: A search of the data bank and TUSC Library located only one specific mention of such application. This was an article taken from Industrial Research, entitled, "Rock-Pulverizing Beam." The article related to an advanced research project at MIT in which a laser was used to penetrate rock. In addition to the article, two NASA Documents, N68-24561 and N68-28949, discussing industrial applications of lasers, were forwarded to the client.

Application: Client has not had sufficient time to provide applications feedback.

Searches Processed During April, May, and June

<u>Search Number</u>	<u>Subject of Search</u>
276s	What advancements in valving have been made to take care of the hydraulic pressures being designed into modern systems?
277s	How can a hydraulic truck platform be maintained in a level condition automatically?
278s	Where two or more hydraulic motors are in parallel, how can an unloaded motor be prevented from absorbing the power from the loaded motor?
279s	Publications on gas bearings.
280s	Audio-Visual Education.
281s	State-of-the-art information on corrosion-control techniques for pipe lines and other related gas company equipment.
282s	How can "white rust" be prevented on stored galvanized steel?
283s	What quality control measures would be applicable to precision gray iron castings?
284s	Uses of skin simulants for monitoring thermal damage to human skin.
285s	Information on government or open-literature information on air traffic congestion at metropolitan airports.
286s	State-of-the-art on flat conductor cables.
287s	How can foam sandwich panels be fabricated using wood as the outside material?
288s	Information on design, application, and maintenance of small marine and industrial engines, both 2-cycle and 4-cycle.
289	State-of-the-art on polyurethane foam; wanted a light-weight, low-density foam for flotation purposes.
290s	How is the best way to overcome inertia for a high-speed tape carriage?

<u>Search Number</u>	<u>Subject of Search</u>
291s	General information on welding and machine shop procedures and techniques. (For training new employee client.)
292	Is there a method of separating materials by variations in color?
293s	Information about packaging or bagging fishing lures.
294s	Information on valve technology.
295s	General information on corrosion and corrosion control.
296s	Technique or method of protecting brass spinners.
297s	Does a machine exist that is capable of grinding granite rock and waste into fine particles?
298s	Information concerning the feasibility of using wash water to water lawns and shrubbery.
299s	A list of products and processes employing lime.
300s	State-of-the-art in painting.
301s	State-of-the-art on molding of lead weights for lures.
302	Welding processes.
303s	Health hazards associated with handling corrosive lubricants or cutting oils.
304s	Welding.
305s	Welding.
306s	Welding.
307s	Welding.
308s	Metal plating.
309s	Adhesives and sealants.
310s	Metal plating.
311	Cryogenic.

<u>Search Number</u>	<u>Subject of Search</u>
312	Centrifugal pumps.
313s	Paints and finishes.
314s	Metal forming.
315s	Packaging techniques for machines.
316s	Uses of trichloroethylene.
317s	Systems analysis.
318	Removing the water content from gypsum.
319s	Information on management and control.
320s	What phosphors are used in electroluminescence.
321s	What is the degradation rate of electroluminescence in relation to voltage and frequency?
322	Search done on blenders.
323s	Information on computer applications.
324	Have laser beams been used for cutting or drilling limestone?
325s	Baked enamel and air-dry enamel painting. State-of-the-art of paints and finishes.
326	What effect does long-term exposure to -60 degrees Fahrenheit temperature have on polyurethane foam?
327s	Computer application in accounting.
328	Asbestos, source of supply, consumption statistics, and fabrication techniques.
329s	ABS fabrication and production techniques.
330s	General information on corrosion control.
331s	General information on welding.
332s	Adhesive for use in laminating fiber glass.
333s	Transparent plastics and microwave curing and ovens.

<u>Search Number</u>	<u>Subject of Search</u>
334s	General information on metals and metallurgy.
335s	General information on pumps.
336s	Mastic adhesives used with polyurethane foam.
337s	Paint vs. plastic as a coating material.
338	Processes and manufacturing of Butyl Products.
339s	Methods, techniques, and application used for packaging plastic products.
340	Hot-dip galvanizing processes.
341s	Salt water corrosion.
342s	Aluminum welding.
343s	Finishing and polishing aluminum.
344s	Anodizing of aluminum.
345s	Flat coatings for use with polystyrene.
346	Bores and worms. (Environment: Sea Water).
347s	State-of-the-art in pumps and valves; specifically, for handling corrosive liquids in oil field situations.

Economic Data Collection

The Regional Economist spent much of his time locating and compiling economic data for the Impact Measurement Study. He also obtained economic data to be used in the planning of TUSC's future program.

Several sets of the Human and Material Resources and Source Notes and Explanations for Human and Material Resources were sent this quarter. Some of the requests we received were from the following: University of Arkansas, Fayetteville, Arkansas;

Reference Center, Public Service Company of Oklahoma, Tulsa, Oklahoma; University of Liverpool, Liverpool, England; and Harvard University, Cambridge, Massachusetts.

Faculty Information Service

A faculty member requested that a student majoring in industrial technology be furnished information on welding processes. He was supplied the article, Welding Galvanized Tubes to Carbon Steel Tube Sheet.

Impact Measurement Study

The Impact Measurement Study was completed during this quarter, and 276 copies were distributed. Some of the responses that have been received are as follows:

Congratulations on your excellent Final Report which we received today. We know that your operation has had a major impact on your area and trust that you will be able to continue to make this fine contribution.

The booklet summarizes 5 years of much progress for which you are to be highly commended. We are extremely proud of the Technology Use Studies Center.

We feel that the TUSC program is one in which the primary area of activity is cohesive enough so that, bringing to bear the capabilities of regional economists on your staff, a useful estimate can be made of the impact of the program on regional economic growth. Your report represents an excellent attempt to achieve this rather difficult goal.

Particularly useful are the case studies of individual "transfer cases" documenting TUSC impact on clients.

Cooperation with Other Agencies

A Small Business Administration official requested TUSC assistance this quarter. He needed to know what techniques are used in blending raw plastics and what costs are involved.

TUSC searched the data bank and the TUSC library, in addition to contacting experts in the field. The results of the search, document titles, and other sources of expertise, were provided the SBA official by phone. He decided this information sufficiently answered the question.

The SBA official used the information as supporting data in granting a loan to a small plastics firm.

Also for SBA a search was done on what effect does long term exposure to -60°F have on polyurethane foam. Supplied were two articles from the TUSC Library and four articles from the Modern Plastics magazine.

SPECIFIC REPORT RELATING TO STATEMENT OF WORK IN NSR 37-004-009

Technology Fact Bulletins

Preliminary work for the development of the technical "Fact Bulletins" was undertaken during this period. Twenty searches were conducted by the information retrieval personnel. The staff has reviewed the searches and has determined that there is adequate information in the data bank to develop bulletins on a variety of subjects. The first technical bulletin encompasses the subject of Hydraulic Components. An initial draft of the bulletin was completed during the quarter.

GENERAL CENTER FUNCTIONS

Dr. C. Henry Gold and Mr. Don Carpenter represented TUSC at the "Pride in Oklahoma Essay Contest Awards Banquet" sponsored by the Oklahoma State Chamber of Commerce. Dr. Gold was vice-chairman of the contest.

Mr. A. M. Moore spoke to the Durant Jaycees on the topic, "Aerospace Development and City Planning."

Mr. Moore spent considerable effort with Mr. E. V. Stair of Caddo in the progress of Mr. Stair's tree-cutting device as explained in Transfer 40.

Dr. Gold and Mr. Harold Warren traveled to Washington, D. C. to meet with Mr. Ronald Phillips and Mr. Joseph Carlson of NASA-TUD regarding a new TUSC contract proposal and to submit a draft of the Impact Measurement Study.

Dr. Gold and Mr. Carpenter represented TUSC at the ground-breaking ceremonies of the \$75 million plant of the Uniroyal Tire, Inc., Ardmore, Oklahoma. This is a new industry within the TUSC primary region and when in operation will be a prospective client.

TUSC STAFF

Mrs. Marian LaJoyce Griggs has assumed the duties as secretary for TUSC replacing Candice Dowd.

Dennis and Candice Dowd have recently accepted positions in the public school system of Arlington, Texas. Dennis, who was an information assistant, will begin teaching this fall.

Candice, who was the technical secretary for TUSC, has accepted the position as a secretary and receptionist.

Robert Klein, who came to TUSC in October of 1965 as a statistical assistant, has accepted a position as internal auditor for the Continental Oil Company in Ponca City, Oklahoma.

APPENDIX A

SUMMARY CHARACTERISTICS OF TUSC
TECHNICAL SEARCHES

TABLE 2 (Continued)

SUMMARY CHARACTERISTICS OF TUSC TECHNICAL SEARCHES BY DATA SOURCE,
 April 1, 1969 - June 30, 1969

Search Number	Federal R & D Reports	Library of Congress	McGraw - Hill	TUSC Library	SSC Library	Tech Briefs	Contractor Reports	Technical Notes	Special Publications	Aerospace Technology	American Aviation	Aviation Week	Business Week	Electronics	Engineering News Record	Food Engineering	Forest Industries	Industrial Research	Instruments & Control Systems	International Science & Tech	Iron Age	Materials Engineering	Modern Plastics	Oil & Gas Journal	Research & Development	Science	Technology Week	Welding Journal	Sales Management
340			1	1																									
341																													
342				4		6		5																					
343				1		1																							
344																													
345				1																		2	1						
346	3		1																										
347								2																2					
TOTAL	8	0	17	51	1	122	1	0	66	0	4	0	0	0	0	6	0	1	0	0	0	13	6	4	0	0	0	1	0